

Subject Index

Acidic residues, mutagenesis of, 92

Acidosis

intracellular pH drop in, 233
loss of Ca activation and, 476

Action potential, duration and contractility of, 417

Action potential duration (APD), electrogenic I_{Na-Ca} and, 525

Activation, Ca in ATP-depleted cells and, 474
5'-Adenylylmidodiphosphate (AMP-PNP), mechanism of Mg-ATP and, 152

Adrenal chromaffin cell, secretory vesicle contributions in, 356

Alkali metal ions, Ca^{2+} uptake and, 304

Alpha repeats

intramolecular homology and, 20
mutagenesis studies and, 88

Alpha-chymotrypsin, Na-Na exchange activated by, 236

Alpha-thrombin, phosphorylation and, 254

Alternative splicing, 46

isoforms generated by, 115

kidney Na^+-Ca^{2+} exchanger and, 61

Alternative splicing of mRNA, frog heart and, 41

Aluminum, ATP effect and, 154

Aminophospholipid translocase ('flippase'), giant membrane patch technique and, 136

Anesthesia, Lorin Mullins and, 567

Angiotensin II, phosphorylation and, 254

Ankyrin

actin cytoskeleton and, 75-76

T tubules and, 532

Anoxia, CNS myelinated axons injured by, 366

Antibodies

site-specific antipeptide, 29

specificity and, 323

Antibody binding, 3H -monoclonal, 259

Antibody recognition, 46

Antisense oligodeoxynucleotides (ODNs)

cardiac myocytes and, 119

DCT cells and, 116

exchanger mRNA and, 93

Arrhythmias, effects of La^{3+} on, 547

Aspartate residues, mutations at, 90

Astrocytes

localization of Na^+-Ca^{2+} exchanger in, 324

Na^+-Ca^{2+} exchanger in, 36

Asymmetry of bidirectional Ca movements, 230

ATP

aminophospholipid translocase and, 137
regulation of exchanger by, 42

ATP depletion, exchanger-mediated Ca uptake affected by, 466

ATP stimulation, Na^+ gradient-dependent Ca^{2+} uptake and, 282

ATP/ADP ratio, cellular, 205

ATP-binding consensus site, frog heart and, 42

ATPase, protein kinases and, 258

Atrial myocytes, adult human, electrogenic I_{Na-Ca} in, 525

Atrial-type action potentials, cardiac rhythm and, 480

Axonic cascade, white matter and, 375

Axons, myelinated, 366

Barnacle muscle cells, voltage dependence in, 236

Bell-shaped relationship, Na gradient and, 454

Bell-shaped temperature curve, 227

Bephratil, anoxic injury and, 370

Beta-agonists, mammalian heart and, 39

Binding sites, affinity of, 354

Bovine retinal rod Na-Ca+K exchanger, 336

Brain aging, neuronal calcium homeostasis and, 379

Brain isoforms, NCX feline, 123

C-Myc, dexamethasone and, 266

Caffeine, contractures induced by, 432

Calcemic hormones, 293

Calcium

axonal injury and, 369

caged, 98

effects of La^{3+} on, 547

intra-axonal, 371

intracellular, pH and, 529

Calcium activation, secondary, 75

Calcium binding site, $^{45}Ca^{2+}$ overlay technique and, 25

Calcium channels, ciguatoxin-1b and, 404

Calcium compartmentation, 408

Calcium concentration jump, 290

Calcium current

calcium release and, 443

contraction and, 440

I_{Ca} , 417

Calcium efflux, transfected CHO cells and, 79

- Calcium homeostasis
exchanger in kidney and, 68
neuronal, 379
- Calcium imaging, 295
- ^{45}Ca overlay, Ca^{2+} binding site and, 25
- Calcium overload, end-stage heart failure and, 543
- Calcium pump, XIP alteration and, 286
- Calcium reabsorption, kidney $\text{Na}^+ \cdot \text{Ca}^{2+}$ exchanger and, 59
- Calcium regulation
giant excised patch technique and, 22
multiple functional states of exchanger and, 163
- Calcium sequestration within ROS disks, 342
- Calcium translocation site, protons at, 186
- Calcium transport, bell-shaped temperature curve and, 228
- Calcium-induced calcium release (CICR), reverse mode of exchanger and, 524
- Capacitance measurements, exchanger electrogenicity and, 148
- Carboxyosin, sarcolemmal ATPase and, 437
- Cardiac glycosides, additional secondary action of, 359
- Cardiac hypertrophy, hemodynamic load and, 489
- Cardiac isoforms, 498
feline NCX, 122
- Cardiac myocytes
contractions in, 522
effects of NCX1 antisense oligonucleotides on, 119
external Mg^{2+} and, 515
- Cardiac sarcolemmal NCX, end-stage human heart failure and, 543
- Cardiac sarcolemmal vesicles, XIP in, 173
- Cardiac sodium-calcium exchange expression, regulation of, 537
- Cardiovascular system, $\text{Na}^+ \cdot \text{Ca}^{2+}$ exchange in, 407
- Catecholamines, reversal of NCX and, 391
- Cations, external monovalent, 279
- Cellular and cardiac physiology, relevance of findings *in vitro* to, 232
- Cellular Ca balance, steady-state, 440
- Cellular function of $\text{Na}^+ \cdot \text{Ca}^{2+}$ exchanger, 12
- Cetiedil, 405
- Charge movements
direct measurement of, 145
giant membrane patch technique and, 136
- Chinese hamster ovary cells, calcium homeostasis in, 73
- Chromaffin cells
functions of, 356
protein phosphorylation and, 395
reversal of NCX in, 391
- Chromaffin granules, 356
- Chymotrypsin, current-voltage relationships and, 144
- Chymotrypsin digestion, proton inhibition and, 186
- Ciguatoxin-1b, 404
- Consecutive translocation, 352
- Contraction
cardiac myocytes and, 522
myocardial force of, 540
- Contractures, rapid cooling, 431
- Coronary angiography, sodium-calcium balance in, 551
- Coupling ratio, rat brain exchanger and, 313-314
- Current transient, 352
- Current-voltage relationships
mutagenesis studies and, 91
sodium translocation and, 143
- Cyclic AMP, NCX activity and, 263
- Cyclopiazonic acid (CPA)
 Ca^{2+} and, 321
contractures induced by, 558
- Cyttoplasmic calcium ($[\text{Ca}]_i$) decline, 439
- Cyttoplasmic pH, 185
- Cytoskeleton
actin, 75
ATP-dependent processes and, 153
- Cytosolic Ca^{2+} oscillations, 356
- Cytosolic factor, MgATP stimulation and, 214
- Cytosolic free Ca^{2+} , changes in, 337
- D**ensity of exchange sites, vertebrate photoreceptors and, 346
- Detailed balance, principle of, 272
- Dexamethasone, NCX mRNA and, 265
- Diadic cleft
calcium in, 409
sodium increase and, 447
- Dialysis, prolonged, 213
- Dialyzing Na, bell-shaped relationship and, 454
- Dichlorobenzamil amiloride (DCB), twitch produced in, 558
- Digital imaging, 320
- 1,25-Dihydroxy-vitamin D₃, kidney $\text{Na}^+ \cdot \text{Ca}^{2+}$ exchanger and, 70
- DiOC, cells labeled with, 326
- Distal convoluted tubule (DCT) cells, 115
- DM-nitrophen, 290
- Drosophila* $\text{Na}^+ \cdot \text{Ca}^{2+}$ exchanger, structure of, 52
- E**C coupling
calcium trigger for, 444
cardiac, 524

Ectopic beats, initiation and propagation of, 482
 Electrogenic $\text{Na}^+ \text{-Ca}^{2+}$ exchange current (I_{NaCa}), action potential duration and, 525
 Electrogenicity
 retinal photoreceptors and, 354
 transporter, 148
 Electroneutral exchange, voltage sensitivity and, 236–237
 Endolymph, inner ear and, 400
 Endoplasmic reticulum, transfected CHO cells and, 82
 Energy buffer system, 205
 Epithelial cell, downregulation of NCX activity by PMA in, 262
 Erythrocytes, dog and ferret, 503
 Exchange current noise, 151
 Exchanger inhibitory peptide (XIP)
 autoregulatory function of, 172
 cysteine replacements and, 286
 inactivation process and, 28
 modifications of, 284
 SR Ca release and, 455
 Exchanger inhibitory peptide domain, possible mechanism for, 180
 Exchanger superfamily, 21
 Excised patches, retinal photoreceptors and, 349
 Excitation in plants, Lorin Mullins and, 566
 Excitation-contraction, heart, 8
 Excitation-contraction coupling, 417
 Exocytosis, Ca^{2+} efflux and, 360
 Exons/introns, sequence analysis of, 49
 Expression, functional, 47
 Extracellular pH, effect of changes in, 195
 Extracellular sodium, glutamate-induced calcium challenge and, 380

FCCP, mitochondrial membrane potential and, 434
 5' splicing site, 111
 5'-RACE (rapid amplification of DNA 5'-ends), 63
 Flash-photolysis, 98
 Flippase, *see* Aminophospholipid translocase
 Fluorescence immunocytochemistry,
 chromaffin cells and, 359
 FMRFa (Phe-Met-Arg-Phe-NH₂), 288
 Forskolin, NCX mRNA and, 263
 Forward exchange, 350
 Frog heart, peculiarities of, 39
 Functional activity, end-stage heart failure and, 543
 Functional expression, 47

Fura-2, correlation between ^{45}Ca uptake and, 74

Future, $\text{Na}^+ \text{-Ca}^{2+}$ exchanger and, 13

Gating, transporter, 139

Gene expression, end-stage heart failure and, 543

Gene structure, human NCX1, 103

Genomic clone

5'-end exons and, 65
 rabbit, 49

Giant membrane patch, 136

Glia

 external monovalent cations and, 279
 $\text{Na}^+ \text{-Ca}^{2+}$ exchanger identified in, 12

Glutamate residues, mutations at, 90

Glutamate-induced calcium loads, aged hippocampal neurons and, 379

Glycine residues, mutations at, 90

Growth factors

 glucocorticoids and, 264
 phosphorylation and, 249

Guinea pig myocytes, voltage sensitivity in, 237

Guinea pig single ventricular cells, Mg^{2+} and, 515

Hair cells, frog saccular, 397

Heart

 excitation-contraction in, local control of, 8

 guinea pig, single ventricular cells of, 515

 human, failing, 539

 ion transport in, Lorin Mullins and, 577

 ischemic rabbit, 534

 novel alternatively spliced isoform of NCX in, 129

 transgenic mouse, 126

Heart failure, human, end-stage, 543

Heart mitochondria, $\text{Na}^+ \text{-Ca}^{2+}$ antiport of, 553

Heart rate, intracellular Na and, 462

Heat-shock protein, ischemia duration and, 535

HeLa cells, clone RBE-1 transfected, 30

Hippocampal neurons, aged, 379

Homology of transporters, structural, 53

Human NCX1 gene, exon composition of, 104

Human NCX2 gene, exon composition of, 105

Immunofluorescence, 323

 clone human $\text{Na}^+ \text{-Ca}^{2+}$ exchanger and, 47

Inactivation, Na^+ -dependent, 27

 transfected CHO cells and, 75

- Influx, sodium and calcium, 297
 Inner ear, cardiac NCX protein in, 400
 1,4,5-Inositol triphosphate (InsP_3), transfected CHO cells and, 77
In situ hybridization, kidney $\text{Na}^+ \text{-Ca}^{2+}$ exchanger and, 60
 Insulin-producing cells, 132
 Intact cells
 how much ATP needed to activate exchanger in, 466
 Mg^{2+} and, 515
 Intracellular calcium
 action potential duration and, 417
 direction of exchange and, 115
 Intracellular sodium, trigger and, 456
 Ion selectivity, Lorin Mullins and, 564
 Ion binding sites, electroneutral exchange and, 237
 Ischemia
 ATP depletion and, 466
 intracellular pH drop in, 233
 Isoforms, 49
 novel alternatively spliced, 129
 specific $\text{Na}^+ \text{-Ca}^{2+}$ exchanger, 29
 I-V relation, whole-cell exchange current and, 166
- K**idney
 NCX1 in, 48
 rat $\text{Na}^+ \text{-Ca}^{2+}$ exchanger gene in, 58-59
 sodium-calcium exchanger and, 9
 Kidney isoforms, NCX feline, 123
 Kinetic model, development of, 278
 Kinetic parameters, detailed balance and, 273
 Kinetic studies, transient state, 94
 Kinetics
 NCX current, Ca^{2+} concentration jump and, 290
 outward $\text{Na}^+ \text{-Ca}^{2+}$ exchange current and, 517
 rat brain synaptosomes and, 300
 technical advances in, 135
- L**anthanum, cardioprotection provided by, 546
 Linearly independent cycles, 273
 Local control, excitation-contraction in heart and, 8
 Lymphocytes
 peripheral, 507
 sodium-calcium exchanger and, 12
- M**agnesium
 effects of La^{3+} on, 547
 external, 515
 Magnesium ATP (MgATP), phosphoarginine difference from, 200
 Magnesium ATP stimulation, nerve cytosolic factor required for, 210
 Magnesium concentration, loss of Ca sensitivity and, 476
 Mechanical stimuli, hair cells and, 397
 Mechanism
 exchange, 142
 technical advances in, 135
 Membrane potential
 axonal, 367
 Ca^{2+} fluxes and, 311
 Mitochondria
 caffeine and, 436
 transfected CHO cells and, 82
 Mitotic metaphase cells, 296
 Mobile cytosolic Ca^{2+} buffers, hair cells and, 397
 Modulation, growth factors and, 249
 Modulation reactions, exchanger, 137
 Molecular actions, predicting therapeutic efficacy from, 1
 Molecular biology, progress in, 19
 Molecular investigations of the $\text{Na}^+ \text{-Ca}^{2+}$ exchanger, 13
 Monocytes, transport phenomena and, 505
 Monovalent cations, absence of, 167
 Mouse cardiac NCX, cloning of, 126
 mRNA, ischemic duration and, 534
 Mutagenesis studies, 86
 Myocardial rhythm disturbances, effects of La^{3+} on, 546
 12-Myristate 13-acetate (PMA), phosphorylation and, 254
- N**-terminal segment, protein in HeLa cells and, 32
 NACA3, 132
 NACA7, 132
 NACA8, 129
 Nematode *C. elegans*, cDNA clone in, 107
 Nerve, ion transport in, Lorin Mullins and, 570
 Nerve terminals, physiological roles of $\text{Na}^+ \text{-Ca}^{2+}$ exchanger in, 314
 Neural system, $\text{Na}^+ \text{-Ca}^{2+}$ exchange in, 299
 Neuronal $\text{Na}^+ \text{-Ca}^{2+}$ exchanger, local control feature in, 8
 Neurons, distribution of $\text{Na}^+ \text{-Ca}^{2+}$ exchanger in, 328
 Neuropeptides, reversal of NCX and, 391
 Neutrophils, human, 505
 Newborn maturation, myocardial intracellular calcium concentrations during, 537
 Nickel, contractions and, 523
 Nifedipine, contractions and, 523

Nigericin, Na^+ -dependent Ca^{2+} efflux stimulated by, 554

Noise analysis, methods of, 151

Northern blot, kidney $\text{Na}^+-\text{Ca}^{2+}$ exchanger and, 60

Oligodeoxynucleotides, antisense, 93

Optic nerve, anoxia and, 367

Osteoblastic cells, calcemic hormones in, 293

Ouabain, rat aortic myocytes and, 321

Outward $\text{Na}^+-\text{Ca}^{2+}$ exchange current, effects of $[\text{Mg}]_o$ on, 516

P-type ATP-binding site, 43

Pancreatic B cells, 288

Parathyroid hormone, kidney $\text{Na}^+-\text{Ca}^{2+}$ exchanger and, 70

Partial reactions, deprotonation and, 223

Patch clamp, retinal photoreceptors and, 347

Peptides, inhibition and, 174

pH

cardiac $\text{Na}^+-\text{Ca}^{2+}$ exchange and, 182
intracellular, calcium and, 529

pH regulation, role of, 3

pH titration curves, 220

Phenylephrine, cardiocyte hypertrophy and, 490–491

Phorbol ester

Ca^{2+} fluxes and, 310
downregulation of NCX mRNA by, 261

Phosphatidic acid, exchange current and, 155

Phosphatidylcholine, ATP effect and, 155

Phosphatidylinositols, exchange current and, 155

Phosphatidylserine, exchange current and, 155

Phosphoarginine, modulation of $\text{Na}^+-\text{Ca}^{2+}$ exchange fluxes and, 199

Phospholipid environment, XIP and, 177

Phospholipid messengers, regulation and, 154

Phosphorylation

effects of ATP on exchange currents and, 75

exchange process not regulated by, 353

growth factors and, 249

MgATP stimulation and, 214

protein, catecholamine secretion and, 395

regulation by, 37

Phylogeny of transporter sequences, 53

Physiological conditions, triggering SR release under, 443

Plasma membrane, antibodies raised against, 325

Plateau, action potential, 481

Platelet-derived growth factor, phosphorylation and, 250

Platelets, human, 504

Potassium, effects of La^{3+} on, 547

Potassium ions, interactions between Ca^{2+}

and Na^+ ions and, 338

Primary neurons, effects of NCX1 antisense oligonucleotides on, 119

Protein kinase, plasma membrane calcium ATPase and, 258

Protein kinase C, renal epithelial cells and, 260

Proton inhibition, outward $\text{Na}^+-\text{Ca}^{2+}$ exchange current and, 195

Protonated-deprotonated forms, 225

Putative NCX gene, 107

Q₁₀, 439

Rate-limiting pathways, 219

Rate-limiting sodium and calcium transport, 221

Rate-limiting step, Ca^{2+} transport as, 350

Reconstitution, XIP inhibition and, 175

Regulation

rat brain synaptosomes and, 300

technical advances in, 135

transfected CHO cells and, 75

Relaxation, species differences in, 432–433

Retinal photoreceptors, $\text{Na}^+-\text{Ca}^{2+}, \text{K}^+$ exchange sites in, 346

Reverse $\text{Na}^+-\text{Ca}^{2+}$ exchange

Ca^{2+} and K^+ accumulation during, 349–350

SR calcium release and, 451

RHE-1, RBE-2 and, 31

Rhythm, cardiac, abnormal, 482

RNA splicing, 49

RNase protection, 65

Sarcolemmal Ca binding, 409

Sarcolemmal Ca-ATPase, caffeine and, 436

Sarcolemmal phospholipids, 408

Sarcolemmal skeletal muscle, $\text{Na}^+-\text{Ca}^{2+}$ exchange studies in, 556

Sarcoplasmic reticulum

action potential contractility and, 417

Ca^{2+} stored in, 321

replenishing, with calcium, 521

triggering calcium release from, 443

Sarcoplasmic reticulum Ca^{2+} concentration level, 560

Sarcoplasmic reticulum Ca content, 440

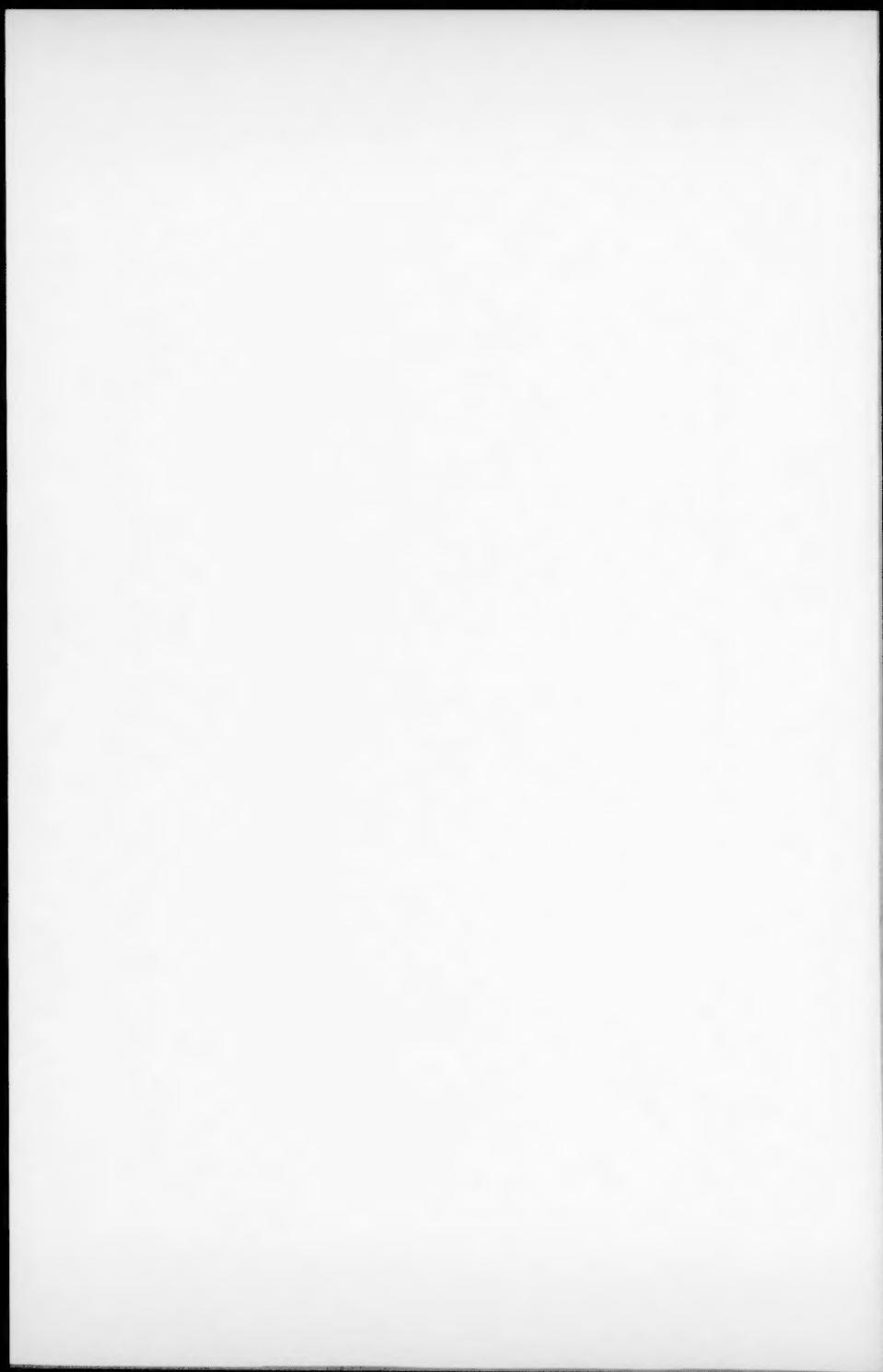
Sarcoplasmic reticulum Ca^{2+} release, reverse $\text{Na}^+-\text{Ca}^{2+}$ exchange and, 451

Sarcoplasmic reticulum Ca^{2+} -ATPase

(SERCA 2a), failing human heart and, 540

- Secretory vesicle Na-Ca exchanger, 356
 Serine residues, mutations at, 88
 Shortening, I_{Ca} and voltage and, 453
 6-Kb cDNA, 114
 Skeletal muscle, sarcolemma, 556
 Smooth muscle cells, Na^+ - Ca^{2+} exchanger and, 12
 Sodium, effects of La^{3+} on, 547
 Sodium channel, axonal injury and, 370
 Sodium channel activator, failing human heart and, 539
 Sodium gradient-dependent Ca^{2+} uptake, ATP stimulation of, 282
 Sodium sea water Ca^{2+} -free ($NaSW0Ca$) solution, 237
 Sodium translocation site, cytoplasmic pH and, 185
 Sodium-calcium antiport, properties of, 553
 Sodium-calcium balance, coronary angiography and, 551
 Sodium-calcium exchange current outward, 516 separation of, 100
 Sodium-calcium exchange protein, XIP in, 171
 Sodium-calcium exchange-dependent Ca compartment, 412
 Sodium-calcium exchanger cardiac sarcolemma, 217 cloning of, 110 function of, 410 other regulators of, 3
 Sodium-calcium exchanger gene, feline, 121
 Sodium-calcium exchanger isoform expression, 124
 Sodium-calcium exchanger message half-life, 494
 Sodium-calcium exchanger upregulation, cultured myocytes and, 490
 Sodium-calcium gene, feline, 499
 Sodium-dependent ^{45}Ca efflux, chromaffin cells and, 356
 Sodium-dependent inactivation (I_1) multiple functional states of exchanger and, 160 physiological pH and, 192 stimulation and inhibition of, 140
 Sodium-independent calcium dependent inactivation (I_2), multiple functional states of exchanger and, 164
 Sodium-induced outward current, cytoplasmic dichlorobenzamil amiloride (DCB) and, 558
 Sodium-potassium pump, mutagenesis of residues and, 91
 Sodium-sodium exchange, α -chymotrypsin and, 236
 Splicing products, 113
 Squid axons phosphoarginine in, 199 voltage sensitivity in, 237
 Squid optic nerve, MgATP stimulation and, 208
 Stable isotopes, ion microscopy imaging of, 295
 Store-dependent Ca influx (SDCI) $LaCl_3$ and, 511 transfected CHO cells and, 77
 Sulfosuccinimidyl acetate (SNA), peptide 1 modified with, 285
 Synaptosomes, rat brain, 300
- T** tubules, ankyrin present at, 532
 Temperature, relaxation and, 439
 Temperature-dependent curves, 226
 Tension development, various $[Na^+]_o$ and/or $[Na^+]_i$ and, 560
 Thapsigargin SR Ca load and, 435 transfected CHO cells and, 77
 Therapeutic efficacy, molecular actions and, 1
 Therapeutic intervention, possibilities for, 4
 Thermodynamic constraints, rate coefficients and, 277
 Threonine residues, mutations at, 88
 Thrombin, NCX mRNA and, 267
 Thyroid hormone, rabbit, 536
 Tissue-specific expression, 49
 Transcription, kidney, brain, and heart, and, 68
 Transient current, 292
 Transport cycle, exchanger, 138
 Trigger, reverse Na^+ - Ca^{2+} exchange and, 456
 Triggering calcium release, calcium current in, 443
 Trypsin, I_1 - and I_2 -inactivations and, 165
 Turnover, 292
 Turnover number, retinal photoreceptors and, 346
 Twitch, dichlorobenzamil amiloride (DCB) and, 558
- V**anadate, phosphoarginine and, 206
 Vascular smooth muscle cells localization of Na^+ - Ca^{2+} exchanger in, 324 phosphorylation in, 249 sodium-calcium exchanger mRNA and activity in, 268

- Ventricle, action potential duration and contractility in, 417
- Ventricular action potentials, cardiac rhythm and, 480
- Ventricular cells, Mg²⁺ and, 515
- Veratridine, cardiomyocytes and, 491
- Voltage clamp
antisense oligodeoxynucleotides and, 95
electroneutral modes of exchange and, 237
- Voltage dependence, barnacle muscle cells and, 236
- Voltage sensitivity, rat brain exchanger and, 313-314
- Voltage-dependent steps, location of, 2
- X**-ray contrast media, coronary injection of, 551
- Xenopus* oocytes, mouse cardiac NCX in, 126
- Z** disk, ankyrin present at, 532



Index of Contributors

Adams, W. A., 529–531

Allen, C. J., 286–287

Artman, M., 536–538

Austin, C., 529–531

Baazov, D., 217–235

Balasubramanyam, M., 502–514

Baltazar, G., 391–394

Barnes, K. V., 121–125, 489–501

Bassani, J. W. M., 430–442

Bassani, R. A., 430–442

Baysal, K., 553–555

Beaugé, L., 199–207, 208–216, 279–281, 282–283

Berberián, G., 208–216, 282–283

Bers, D. M., 430–442

Bersohn, M. M., 534–535

Bindels, R. J. M., 58–72

Bland, K. S., 119–120

Blaustein, M. P., 300–317, 318–335

Boerth, S. R., 536–538

Böhm, M., 539–542

Bollen, A., 132–133

Borin, M. L., 318–335

Bouchard, R. A., 417–429

Bridge, J. H. B., 451–463

Brierley, G. P., 553–555

Cannell, M. B., 7–18, 443–450

Carafoli, E., 37–45, 103–109, 110–114

Carvalho, A. P., 391–394

Chabbert, C., 397–399

Chandra, S., 295–298

Chatterjee, G., 546–550

Chen, F., 532–533

Cheng, H., 7–18

Chernaya, G., 73–85

Chumakov, I., 103–109

Clark, R. B., 417–429

Coetze, W. A., 536–538

Condrescu, M., 73–85

Cook, O., 29–36

Cooper, G., IV, 489–501

Das, D. K., 546–550

Dawson, M. M., 121–125, 489–501

Delgado, D., 208–216

Denison, H. A., 284–285

Desantiago, J., 236–248

Dilly, K. W., 529–531

DiPolo, R., 199–207, 208–216

Doering, A. E., 182–198, 529–531

Drexler, H., 543–545

Duarte, E. P., 391–394

duBell, W., 7–18, 46–57

Eisner, D. A., 182–198, 529–531

Engelman, R. M., 546–550

Espinosa-Tanguma, R., 236–248

Evans, A. M., 443–450

Falck, G., 551–552

Flesch, M., 539–542

Fontana, G., 300–317

Frank, J. S., 86–92, 532–533

Friedman, P. A., 115–118

Furman, I., 29–36

Gabellini, N., 110–114

Gardner, J. P., 502–514

Garfinkel, A., 532–533

Gatto, C., 284–285, 286–287

Gauthier, A., 556–560

Gesek, F. A., 115–118

Giles, W. R., 417–429

Goknur, A. B., 464–479

Gonzalez-Serratos, H., 556–560

Gourlet, P., 288–289

Grantham, C. J., 443–450

Guerini, D., 37–45

Hale, C. C., 171–181, 284–285

Hartung, K., 290–292

Haworth, R. A., 464–479

He, S., 7–18, 46–57

Herchuelz, A., 132–133, 288–289

Hilgemann, D. W., xiii–xiv, 136–158,

159–170, 556–560

Holgado, A., 279–281

Holtz, J., 543–545

Hryshko, L. V., 20–28, 86–92

Islam, S., 119–120

Iwamoto, T., 249–257

Iwata, T., 37–45, 110–114

Jan, C.-R., 356–365

Juhaszova, M., 318–335

Jung, D. W., 553–555

Just, H., 543–545

Jynge, P., 551–552

Kao, L.-S., 395–396

Kappl, M., 290–292

Karlsson, J. O. G., 551–552

Kasir, J., 29-36
 Kent, R. L., 489-501
 Khananishvili, D., 217-235
 Kieval, R., 7-18
 Kilav, R., 58-72
 Kim, I., 126-128
 Kimura, J., 515-520
 Kirby, M. S., 46-57
 Kofuji, P., 7-18, 46-57
 Kohmoto, O., 451-463
 Kraev, A., 37-45, 103-109
 Krieger, N. S., 293-294

Langer, G. A., 408-416
 Lattanzi, D., 129-131
 Lebrun, P., 288-289
 Lederer, W. J., 7-18, 46-57, 182-198
 Lee, C. O., 126-128
 Lee, H.-W., 258-271
 Lee, S.-L., 58-72
 Lee, W.-S., 58-72
 Legrand, A.-M., 404-406
 Leguennec, J.-Y., 480-488
 Lehoulleur, J., 397-399
 Levi, A. J., 451-463
 Levitsky, D. O., 20-28
 Li, G.-R., 525-528
 Lin, L. F., 395-396
 Lindenmayer, G. E., 318-335
 Lipp, P., 93-102
 Litwin, S., 451-463
 Low, W., 29-36
 Luo, S., 7-18, 46-57
 Lytton, J., 58-72

Main, M. J., 443-450
 Mancini, P. M., 400-403
 Matsuoaka, S., 20-28, 86-92, 159-170
 Maulik, N., 546-550
 McDermott, D. E., 489-501
 Menick, D. R., 121-125, 489-501
 Meunier, F. A., 404-406
 Michaelis, M. L., 119-120
 Milanick, M. A., 284-285, 286-287
 Mills, L. R., 379-390
 Molgo, J., 404-406
 Moore, E., 532-533
 Morot Gaudry-Talarmain, Y., 404-406
 Morrison, G. H., 295-298
 Moulian, N., 404-406

Nattel, S., 525-528
 Navangione, A., 346-355
 Naveh-Many, T., 58-72
 Neubauer, C. F., 7-18
 Nicoll, D. A., 20-28, 86-92

Niggli, E., 93-102
 Noble, D., 1-6, 480-488

Pedersen, H. K., 551-552
 Peskoff, A., 408-416
 Philipson, K. D., xiii-xiv, 20-28, 86-92,
 159-170, 532-533
 Pütz, F., 539-542

Rahamimoff, H., 29-36
 Rasgado-Flores, H., 236-248, 556-560
 Reeves, J. P., 73-85
 Refsum, H., 551-552
 Reilly, R. F., 129-131
 Reinecke, H., 543-545
 Requena, J., 562-582
 Rispoli, G., 346-355
 Rogers, T. B., 7-18
 Rogowski, R. S., 300-317
 Rojas, H., 208-216
 Rozich, J. D., 489-501
 Rozycza, M., 556-560
 Ruknudin, A., 7-18, 46-57

Sans, A., 397-399
 Santi, P. A., 400-403
 Santiago, E. M., 318-335
 Schneider, A. S., 356-365
 Schnetkamp, P. P. M., 336-345
 Schulze, D. H., 7-18, 46-57
 Schwaller, B., 93-102
 Schwinger, R. H. G., 539-542
 Sellers, P. H., 272-278
 Shigekawa, M., 249-257
 Shimizu, H., 318-335
 Silver, J., 58-72
 Smith, J. B., 258-271
 Smith, L., 258-271
 Spitzer, K. W., 451-463
 Steffensen, I., 366-378
 Studer, R., 543-545
 Sty, P. K., 366-378
 Svoboda, M., 132-133
 Szerencsei, R. T., 336-345

Takahashi, K., 119-120
 Thacker, U. F., 489-501
 Tie, J., 236-248
 Tosaki, A., 546-550
 Tucker, J. E., 336-345

Valdivia, C., 46-57
 Van Baal, J., 58-72
 Vandermeers, A., 288-289
 Van Eylen, F., 132-133, 288-289
 Vassort, G., xiii-xiv

Vatashski, R., 29-36

Vellani, V., 346-355

Veríssimo, P., 391-394

Vetter, R., 543-545

Vites, A-M., 521-524

Weiss, J. N., 20-28

Westhead, E. W., 395-396

White, K. E., 115-118

Winslow, R., 480-488

Wisel, S., 46-57

W

Wagg, J., 272-278

Wakabayashi, S., 249-257

Wasserstrom, J. A., 521-524

Weil-Maslansky, E., 217-235

X

u, W-Y., 284-285, 286-287

Y

ip, R. K., 318-335